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Summary of catch statistics by sub-area and assessment unit for the northern Labrador Arctic charr and Atlantic salmon fisheries in 1991

by

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Abstract

Catch and effort statistics for the northern Labrador Arctic charr fishery in 1991 are summarized. Total northern Labrador charr landings of about 70 t were the second lovest on record since 1974 and were 53% below the previous 10-year mean of 147 t. Charr landings from the Nain fishing region totaled 55 t or 78% of the northern Labrador catch. Within the Nain fishing region, effort declined by 19% and catch per unit effort by 22% over 1990. Landings of Arctic charr in the Nain assessment unit during 1991 represented 29% of the overall catch from the Nain fishing region, while the Voisey and Okak units contributed 20% and 8% respectively. Arctic charr landings at Hebron Fiord were 21 t with catch rates surpassing those recorded during 1981 and 1982 when 78 t of charr were caught. Atlantic salmon landings at Nain are summarized for the period 1977 to 1991. The salmon fishery in northern Labrador was a complete failure with landings from the Nain fishing region totaling only 3 t, the lovest value recorded. Severe ice conditions along the north Labrador coast prevented fisherpersons from accessing many of the traditional offshore fishing areas for much of the normal fishing season.

Résumé

On présente un sommaire des statistiques sur les prises et l'effort de pêche de l'omble chevalier dans le nord du Labrador en 1991. Les débarquements totaux pour cette région, soit environ 70 t, arrivent à l'avant dernier rang de tous les débarquements enregistrés depuis 1974 et sont inférieurs de 53 % à la moyenne des dix dernières années (147 t). Les débarquements d'omble chevalier provenant de la zone de pêche de Nain ont totalisé 55 t, ce qui représente 78 % des prises de tout le nord du Labrador. Dans la zone de Nain, l'effort et les prises par unité d'effort ont diminué respectivement de 19 % et de 22 % par rapport à l'année antérieure. En 1991, les débarquements d'omble chevalier de l'unité d'évaluation de la baie Nain ont représenté 29 % des prises totales de la zone de pêche de Nain, tandis que celles des unités d'évaluation de Voisey et d'Okak représentaient respectivement 20 % et 8 % du total. Les débarquements d'omble chevalier dans le fjord Hebron se chiffraient à 21 t et les taux de prise surpassaient celles des années 1981 et 1982, durant lesquelles les pêcheurs avaient capturé 78 t d'omble chevalier. On présente également un sommaire des débarquements de saumon de l'Atlantique dans la zone de Nain de 1977 à 1991. La pêche du saumon dans le nord du Labrador s'est soldée par un échec total; les débarquements en provenance de la zone de pêche de Nain n'étaient que de 3 t, les plus bas jamais connus. L'abondance des glaces le long du nord du Labrador a empêché l'accès à de nombreuses zones de pêche hauturière traditionnelles pendant une bonne partie de la saison.

Introduction

Continuous records of commercial landings of anadromous Arctic charr (Salvelinus alpinus) from the northern Labrador coast are available since 1944. Catch statistics from the Nain and Makkovik fishing regions, and from subareas within the Nain fishing region (Fig. 1) exist since 1974. From 1977 to 1982 more than 200 t per year of Arctic charr were caught in northern Labrador but during the last five years (1987-91) annual landings have averaged only 102 t. The highest landings on record were 252 t in 1981, while the lowest during the past 30 years were 54 t in 1975. Much of the decline in landings in the Nain fishing region during the past seven years can be attributed to a reduction in fishing effort. However, recent assessments of the Vosiey and Nain stock units have also indicated that current stock size is still below levels estimated for the late 1970's (Dempson 1991a, 1991b). Catch levels of the early 1980's have not been expected to be achieved in recent years without a substantial increase in effort directed towards the charr fishery, in conjunction with a expansion of the fishery into the northern fiord subareas as occurred in 1981 and 1982.

This paper summarizes catch statistic information for the 1991 northern Labrador Arctic charr fishery and updates previous reports (summarized in Dempson and Shears 1990; Dempson and Shears 1991) which have examined landings in the commercial fishery. Atlantic salmon landings from the Nain fishery are also updated.

Methods

Information on the commercial landings of Arctic charr and Atlantic salmon from the Nain fishing region was obtained through purchase slips prepared by Fisheries Statistics and Systems Branch of the Department of Fisheries and Oceans and processed by Salmon and Charr Section of the Salmonid and Habitat Sciences Division. Information on landings from the Makkovik region were obtained directly from records provided by the Makkovik fish plant. Purchase slips from the Nain fishing region included the following information: name of the fisherperson, licence number, area where the fish were caught, date, weight of fish (by species) landed, and number of fish caught. Landed catches were converted to round weight (in kilograms) using the conversion factor: gutted head-on weight x 1.22 = round weight (Dempson 1984). Catch per unit effort estimates in this document, expressed in terms of kilograms per person-week fished, follow the traditional values used in past reports and were derived from the method initiated by Coady and Best (1976).

Results and Discussion

Total northern Labrador Arctic charr landings

Figure 2 illustrates the commercial landings of Arctic charr from 1944 to 1991. Also shown are the landings from the Nain and Makkovik fishing regions since 1974. During the past 18 years, the Nain region has contributed about 85% of the total northern Labrador catch of Arctic charr averaging 131 t per

year. Landings from both regions in 1991 totaled only 70 t, 32% and 53% below the previous five (102 t, 1986-90) and ten year (147 t, 1981-90) means (Table 1). Individually, landings in the Nain fishing region of 55 t in 1991 were 37% lower than in 1990 and 38% and 57% below previous five (88 t, 1986-90) and ten year (126 t, 1981-90) means. While the number of people fishing has been relatively consistent during the past few years, effort in terms of person-weeks fished in 1991 was 19% lower than in 1990 and was the second lowest value recorded since 1974. It has declined by almost 60% from the 1981-85 average.

Undoubtedly, the extremely poor environmental conditions experienced in 1991 contributed to the decreased effort and general failure of the fishery; a characteristic common to many species in 1991. On the positive side for northern Labrador, however, was the resumption of a limited commercial fishery in the Hebron Fiord. With only 15% of the Nain fishing region effort, 38% of the catch, totaling 21 t, was obtained from the Hebron Fiord. Catch rates, in person-weeks fished, surpassed values experienced in 1981 and 1982 when 78 t of charr were landed. Much of the effort at Hebron in 1991 would normally have been directed at Okak Bay and the Cutthroat area. The latter two subareas experienced their lowest effort levels and among the lowest catches ever during 1991.

Charr landings from the Makkovik region in 1991 increased by 12% from the previous year and totaled 15 t, the highest since 1985. With the failure of the salmon fishery in this area, it has been noted that some effort was redirected towards Arctic charr. This may have contributed to the increased catches this past season. The highest landings in the Makkovik region of 39 t occurred in 1982.

Catch and effort data - Nain fishing region assessment unit summary

Appendix 1 provides an updated summary of catch and effort statistics for all subareas within the Nain fishing region from 1974 to 1991. Theses subareas form component parts of larger assessment or stock units. Landings of Arctic charr in the Nain assessment unit during 1991 represented 29% of the overall catch from the Nain fishing region, while the Voisey and Okak units contributed 20% and 8% respectively.

Tables 2, 3, and 4 summarize catch and effort data for the Voisey, Nain, and Okak assessment units, respectively, from 1974 to 1991 while Figure 3 illustrates the trend in landings with respect to Total Allowable Catch (TAC) for these units. For the Voisey Unit, the highest catches occurred during the late 1970's as did the highest catch per unit of effort (CUE) (Fig. 4). Landings in 1991 were 11 t, a decrease of 45% from 1990 but similar to landings in 1989 although 40% lower than the previous ten year average (1981-90) of 18 t. The decreased catch in 1991 reflects an overall lower abundance of charr as effort was comparable with the previous year (Table 2). The poor environmental conditions also delayed the normal period of the fishery when catches and catch rates are generally higher. Unstandardized CUE was the lowest recorded (Fig. 4). Only 65% of the 17 t TAC for the Voisey unit was obtained in 1991.

Landings from the Nain assessment unit in 1991 totaled 16 t, the lovest recorded and only 34% of the 47 t TAC (Table 3). Since 1985, landings for this stock unit have been dominated by catches in the offshore zone. This past year, however, saw a complete failure of the offshore charr (and salmon) fishery. Again, severe ice conditions contributed to this failure by preventing fisherpersons from accessing traditional fishing berths. The number of person-weeks fished in the Nain unit during 1991 decreased by 21% over that of 1990. CUE was the lovest recorded in for this stock unit as well (Fig. 4).

Landings from the Okak assessment unit totaled 4 t in 1991 (13% of the TAC), the lowest recorded. Much of this was a result of the lovest effort ever directed to either the Okak Bay or Cutthroat subareas. Effort was redirected to the Hebron Fiord during 1991 as severe ice conditions generally prevented fisherpersons from trying to avail of any charr or salmon at the traditional Cutthroat fishing berths. CUE decreased by only 11% from 1990 and was comparable with the mean during the past 5 years (Fig. 4).

Standardized catch rates are summarized in Table 5. Catches have been standardized to 1977, week 31 (July 30 - Aug. 5). Standardized and unstandardized catch rates are illustrated in Fig. 5.

Nain region - Atlantic salmon landings

Atlantic salmon landings specifically from the Nain fishing region in SFA 1 are presented for the period 1977 to 1991. Salmon caught in this area are for the most part not from 'local' rivers, that is, rivers located within the Nain fishing region. Most of the salmon (> 74%) sampled between 1977-83 were characterized by river ages of 4 years or older (Reddin and Dempson 1986).

Appendix 2 summarizes the salmon landings by individual subareas within the Nain fishing region. Table 6 summarizes the salmon catches by assessment units. Landings have ranged from a high of 60 t in 1980 to a low of only 3 t in 1991, (Fig. 6). The northern Labrador commercial salmon fishery in 1991 was complete failure. Part of this was a result of severe ice conditions which prevented people from fishing in the primary salmon areas of Dog Island, Black Island, Kiglapaits, and Cutthroat. On average since 1977 these areas contributed 92% of the Nain fishing region salmon catch. In addition, evidence suggests that overall abundance of salmon was low this past year.

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Table 1. Summary of northern Labrador Arctic charr landings (kg round) by fishing region, 1974-91.

	Nain Fishing Region				Makkovik Fishing Region			
Year	Catch	No. of fishermen	Fathoms of gear licensed	Catch as % of total	Catch	No. of fishermen	Fathoms of gear licensed	Total catch
1974	120,414	66		81	28,133			148,547
1975	44,118	85		82	9,542			53,660
1976	134,898	101		90	15,645			150,543
1977	186,165	128		88	24,205			210,370
1978	213,915	131	21,340	86	34,387	149	29,300	248,302
1979	175,263	142	21,320	82	37,693	110	21,225	212,956
1980	167,991	128	23,960	83	35,561	154	30,635	203,552
1981	231,221	122	21,700	92	20,733	154	30,990	251,954
1982	203,012	118	23,600	84	39,163	141	28,200	242,175
1983	149,732	119	24,400	84	29,100	148	29,600	178,832
1984	123,045	115	23,000	83	24,792	147	29,400	147,837
1985	107,120	95	19,000	76	33,945[1]	132	26,400	141,065
1986	99,963	79	15,800	88	13,888	109	21,800	113,851
1987	97,379	72	14,400	91	9,965	130	26,000	107,344
1988	74,010	63	12,600	83	14,819	120	24,000	88,829
1989	84,837	72	14,400	85	14,808	126	25,200	99,645
1990	86,292	67	13,400	86	13,509	103	20,600	99,801
1991	54,614	65	13,000	78	15,137	96	19,200	69,751

[1]Includes 6,788 from spring fishery in Postville area.

Table 2. Catch (kg) and effort (person-weeks fished) statistics for the Voisey assessment units from 1974 to 1991. Quota area catch (QAC) refers to the landings from those subareas specifically under TAC regulation only, prior to the derivation of assessment units in 1985.

Year	TAC[1]	QAC	Catch	Effort	CUE	% Offshore	Unit as % of Nain Region Total
1974			29180			31	24
1975			3727			94	8
1976			14652	57	257	21	11
1977			24108	75	321	9	13
1978			36991	102	363	11	17
1979	22500	21880	40590	116	350	47	23
1980	22500	11557	19694	82	240	42	12
1981	16100	16325	23810	90	265	33	10
1982	16100	2688	13309	60	222	45	7
1983	16100	2953	25593	80	320	89	17
1984	16100	8133	20873	101	207	62	17
1985	23400		15648	57	275	91	15
1986	23400		16655	82	203	82	17
1987	17000		21242	101	210	41	22
1988	17000		14037	52	270	60	19
1989	17000		11019	32	344	100	13
1990	17000		19895	69	288	64	23
1991	17000		10971	60	183	26	20

[1]TAC applied only to Voisey Bay subarea from 1979 to 1984.

Table 3. Catch (kg) and effort (person-weeks fished) statistics for the Nain assessment unit from 1974 to 1991. Quota area catch (QAC) refers to the landings from those subareas specifically under TAC regulation only, prior to the derivation of assessment units in 1986.

Year	TAC[1]	QAC	Catch	Effort	CUE	% Offshore	Unit as % of Nain Region Total
1974			37745			18	31
1975			33830			8	77
1976			53313	196	272	5	40
1977			76255	291	262	7	41
1978			73763	314	235	4	34
1979	61000	52832	66844	336	199	18	38
1980	61000	50176	75055	390	192	30	45
1981	37160	37223	65632	278	236	24	28
1982	43660	39119	55617	235	237	22	27
1983	51000	19102	51202	289	177	34	34
1984	43200	29063	38900	244	159	37	32
1985	30500	36019	41158	252	163	48	38
1986	43000		37095	185	201	56	37
1987	47000		45872	200	229	61	47
1988	47000		38295	229	167	62	52
1989	47000		51465	183	281	41	61
1990	47000		45275	188	241	62	52
1991	47000		15892	149	107	10	29

[1]TAC applied only to Anaktalik Bay and Tikkoatokak Bay from 1979 to 1983 (1983 also includes 5 t for Nain Bay) but includes an offshore component from 1984 to 1985.

Table 4. Catch (kg) and effort (person-weeks fished) statistics for the Okak assessment unit from 1974 to 1991. Quota area catch (QAC) refers to the landings from those subareas specifically under TAC regulation only, prior to the derivation of assessment units in 1986.

Year	TAC	QAC	Catch	Effort	CUE	% Offshore	Unit as % of Nain Region Total
1974			46891			27	39
1975			5057			53	11
1976			25338	148	171	30	19
1977			42392	243	174	37	23
1978			76024	352	216	54	36
1979			43261	283	153	41	25
1980			49035	253	194	66	29
1981	27300	11049	47541	202	235	78	21
1982	27300	9031	34171	186	184	75	17
1983	21000	30732	48978	286	171	39	33
1984	27000	13864	18146	94	193	25	15
1985	27000	24746	33261	208	160	26	31
1986	42000		28896	172	168	30	29
1987	43000		19649	134	147	20	20
1988	31000		17450	136	128	28	24
1989	31000		16563	163	102	10	20
1990	31000		16125	100	161	22	19
1991	31000		4432	31	143	7	8

Table 5. Standardized catch rates (C/E) with standard error (SE) for the Voisey, Nain, and Okak stock units, 1977-91.

	Voisey Unit		Nain Unit		Okak Unit	
	C/E	SE	C/E	SE	C/E	SE
1977	312	53	306	62	421	81
1978	382	64	277	60	415	89
1979	400	67	429	92	319	59
1980	308	53	469	88	416	79
1981	306	50	499	96	463	91
1982	211	35	563	106	464	96
1983	449	81	443	82	393	72
1984	274	45	443	82	389	83
1985	348	58	513	94	232	46
1986	355	41	385	73	292	57
1987	267	53	525	97	210	41
1988	304	49	347	63	183	35
1989	377	71	489	92	138	27
1990	340	61	421	78	318	67
1991	195	33	300	59	139	35

Table 6. Commercial Arctic charr and Atlantic salmon landings by stock unit, 1977-91, for the Nain Region of northern Labrador. Total also includes landings from subareas other than those within stock units.

Year	Voisey Unit		Nain Unit		Okak Unit		Total	
	Charr	Salmon	Charr	Salmon	Charr	Salmon	Charr	Salmon
1977	24108	209	76255	14943	42392	18468	186165	41581
1978	36991	462	73763	15216	76024	22177	213915	48945
1979	40590	327	66844	12658	43261	13126	175263	35722
1980	19694	120	75055	21134	49035	30050	167991	60332
1981	23810	104	65632	16665	47541	23121	231221	48124
1982	13309	139	55617	11737	34171	15383	203012	32974
1983	25593	701	51202	7480	48978	7589	149732	20105
1984	20873	193	38900	3177	18146	7166	123045	15596
1985	15648	333	41158	3819	33261	9210	107120	14653
1986	16655	109	37095	5371	28896	12828	99963	20090
1987	21242	191	45872	2979	19649	10770	97379	14414
1988	14037	157	38295	4813	17450	14607	74010	20090
1989	11019	146	51465	6034	16563	20855	84837	29960
1990	19895	111	45275	4035	16125	8492	86292	12892
1991	10971	19	15892	878	4432	1590	54614	2688

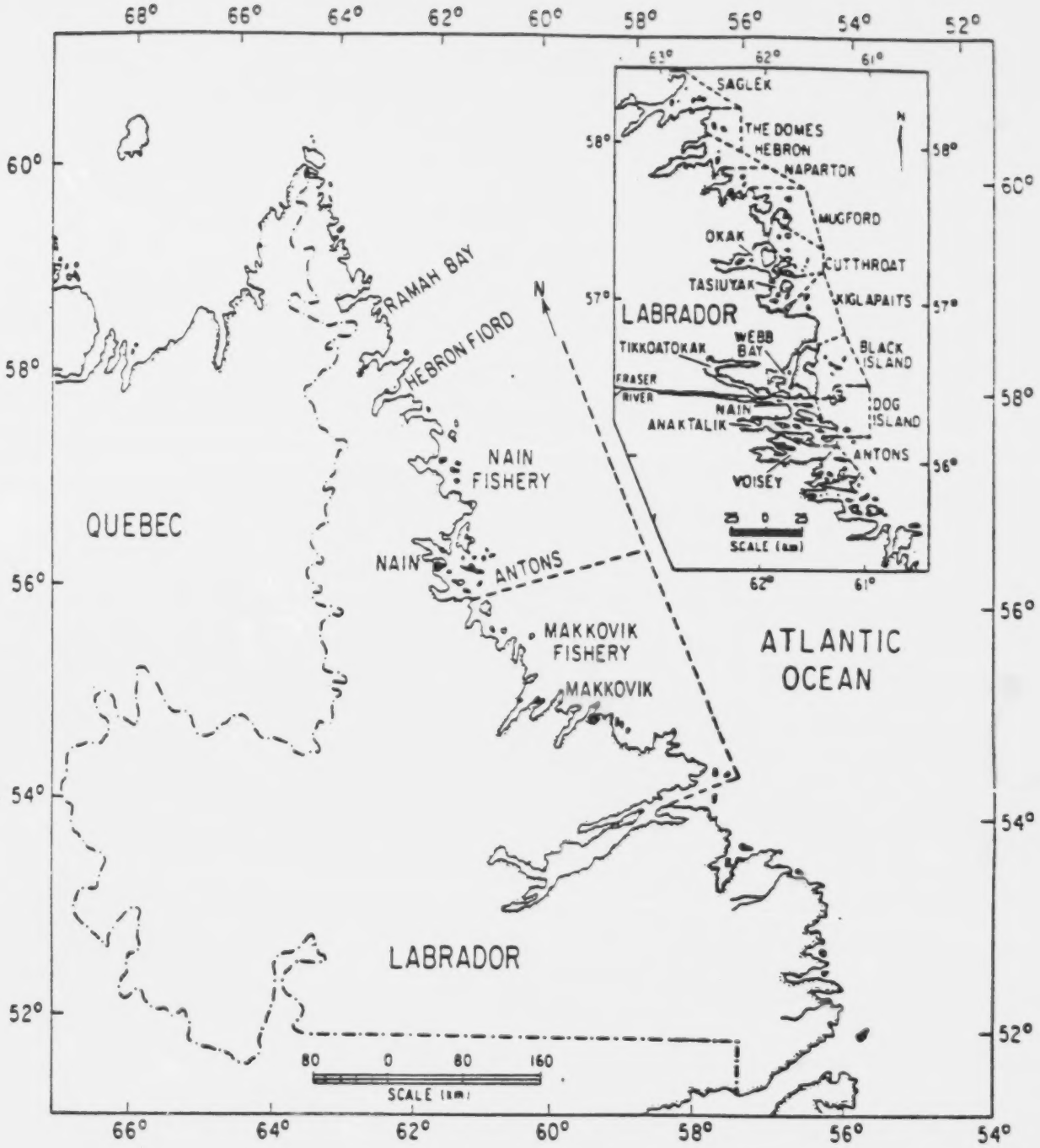

Fig. 1. Location of the Nain and Makkovik Fishing Regions in northern Labrador. Insert illustrates the location of subareas within the Nain Fishing Region.

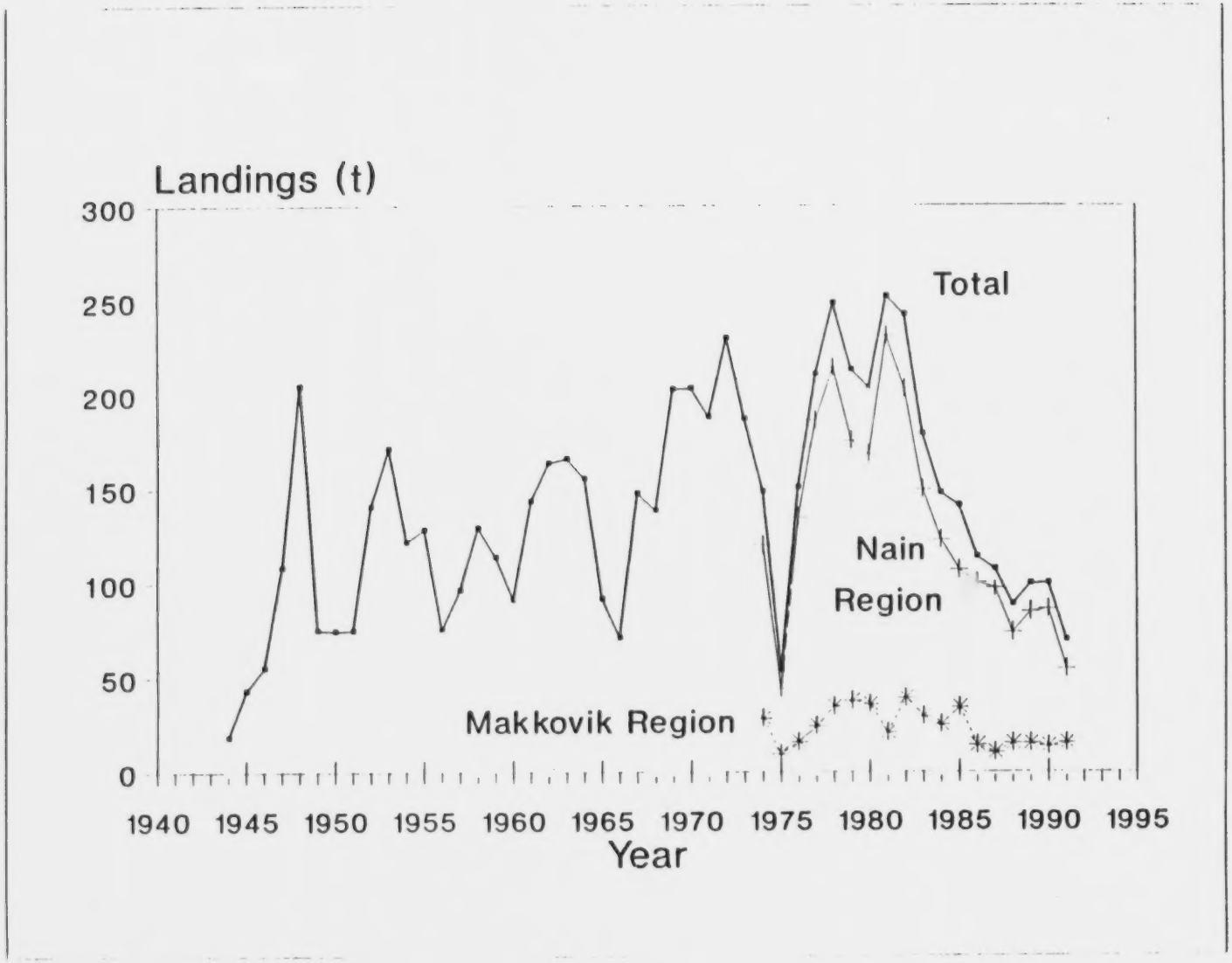

Fig. 2. Summary of northern Labrador Arctic charr landings (tonnes), 1944-91.

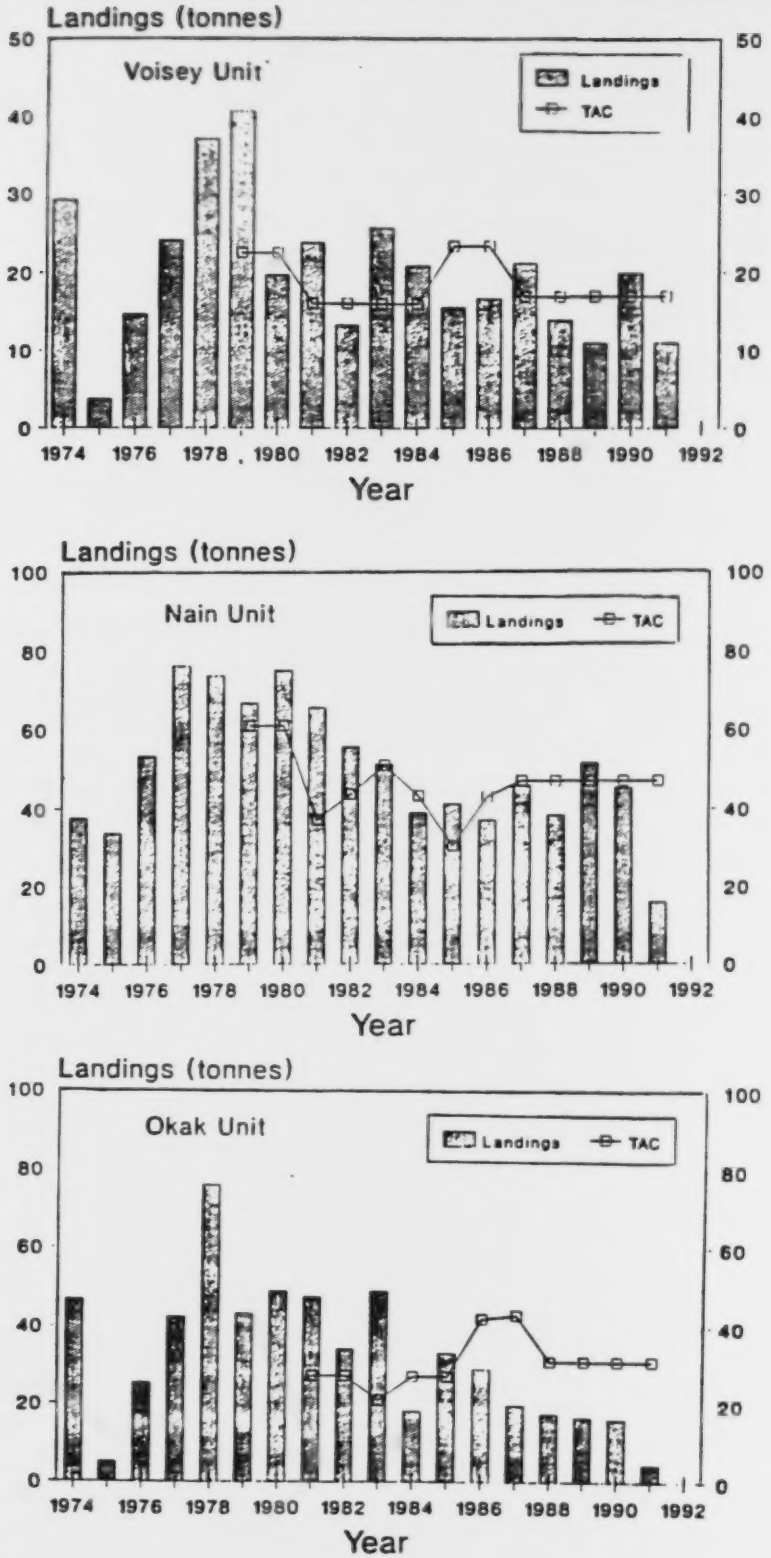

Fig. 3. Summary of total landings with respect to total allowable catch for the Voisey, Nain and Okak stock units.

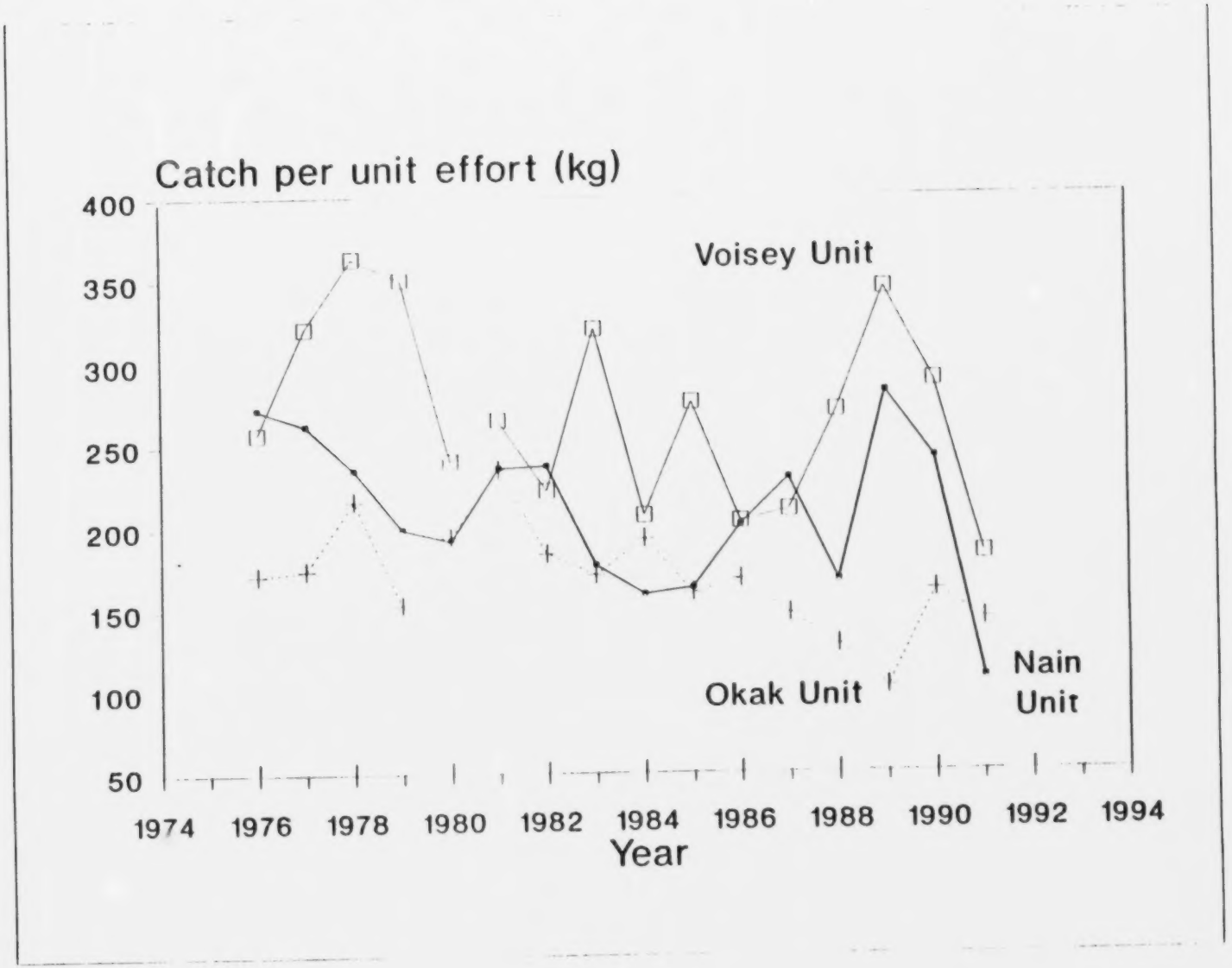

Fig. 4. Trend in conventional catch per unit effort over time for the Voisey, Nain and Okak stock units.

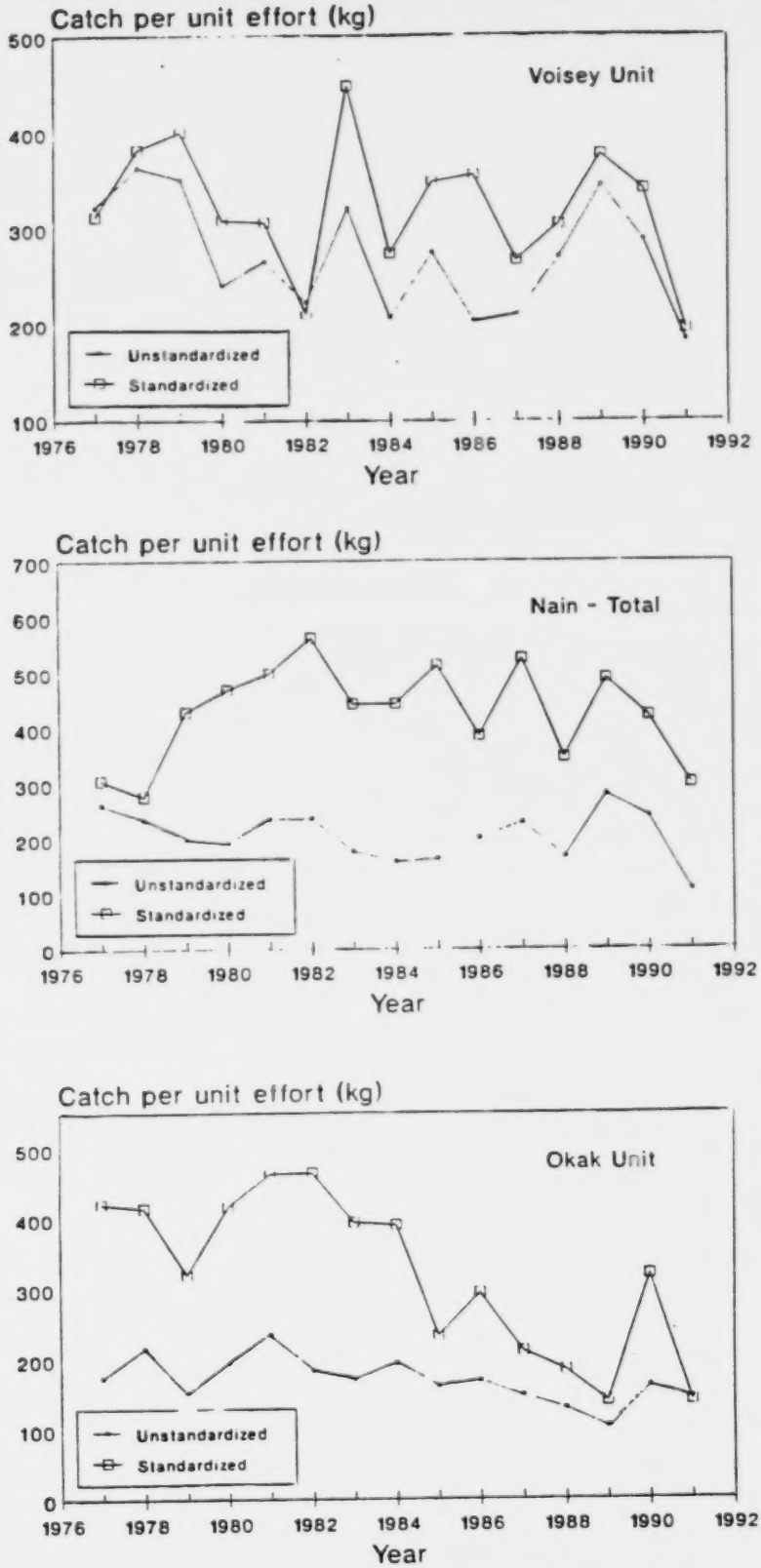

Fig. 5. Comparison of conventional and standardized catch rates for the Voisey, Nain and Okak stock units.

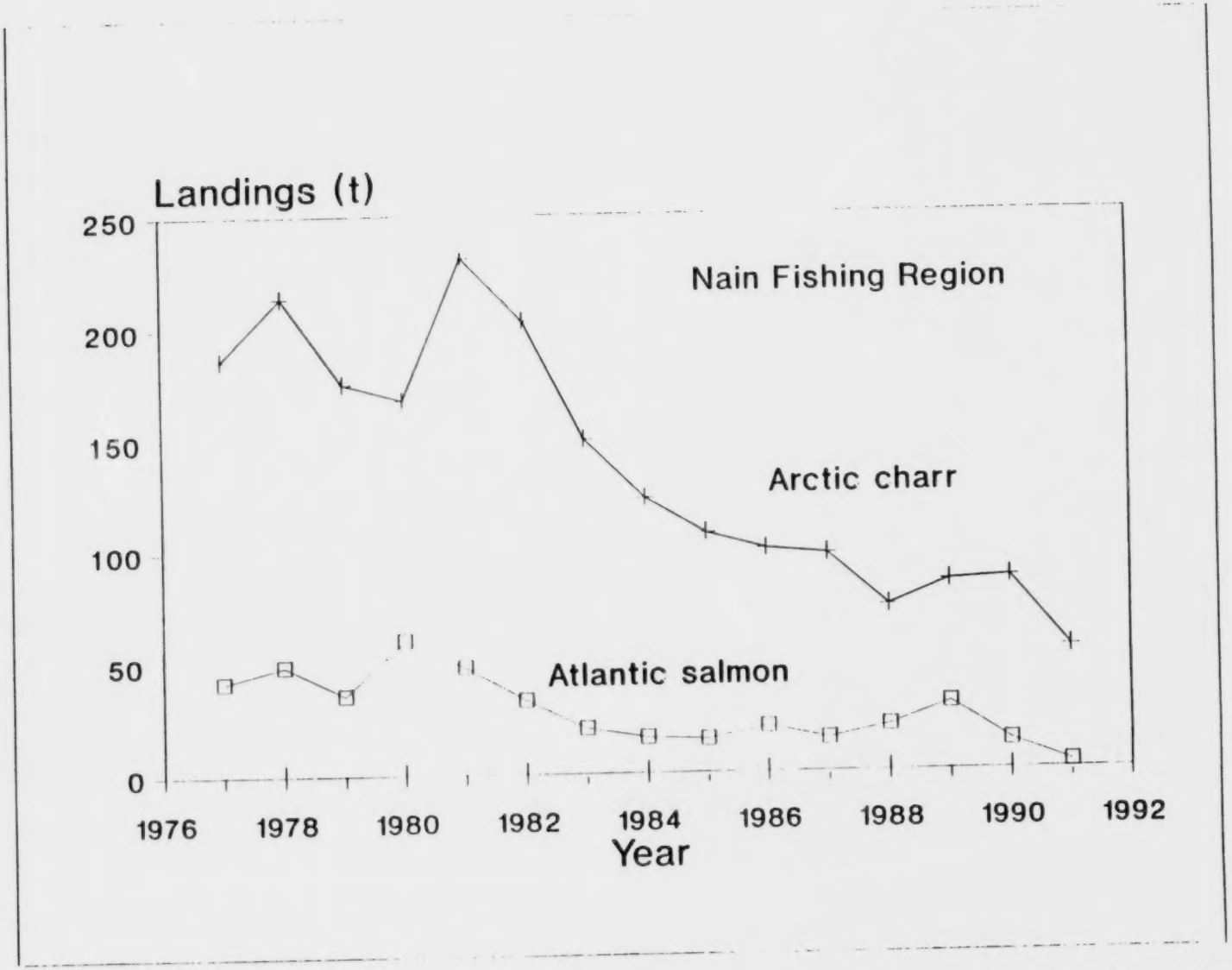

Fig. 6. Summary of Nain region Arctic charr and Atlantic salmon landings (tonnes) 1977-91.

APPENDIX 1. ARCTIC CHARR CATCH STATISTICS, 1974-1991.
SUMMARY OF CATCH AND EFFORT DATA FOR THE MAIN FISHING REGION

AREA=ANTONS

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)	9135	3489	3172	2111	4011	19371	8460	7870	6191
EFFORT (PERSON-WKS)	34	20	6	20	17	63	32	38	24
C/E (KG)	269	174	529	106	236	307	264	207	258
% > 2.3 KG			21	24	28	22	14	13	12

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS									
CATCH (KG)	23062	13099	14212	13589	8611	8460	11019	12659	2813
EFFORT (PERSON-WKS)	63	82	51	67	55	29	32	45	20
C/E (KG)	366	160	279	203	157	292	344	281	141
% > 2.3 KG	9	7							

AREA=VOISEY BAY

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS						22500	22500	16100	16100
CATCH (KG)	20045	238	12232	22488	33597	21880	11557	16325	7688
EFFORT (PERSON-WKS)	64	2	45	56	85	59	52	53	38
C/E (KG)	313	119	272	402	395	371	222	308	202
% > 2.3 KG			42	35	34	32	17	16	17

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS	16000	16000	23400						
CATCH (KG)	2953	8113	1435	3065	12630	5577		7236	8158
EFFORT (PERSON-WKS)	17	24	6	22	54	26		24	43
C/E (KG)	174	338	239	139	234	215		301	190
% > 2.3 KG	17	16							
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AREA=ANAKTAKLIK BAY

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS						21500	21500	8660	8660
CATCH (KG)	7821	2548	14670	21604	13075	14913	8045	9157	10836
EFFORT (PERSON-WKS)	28	10	45	63	55	76	53	32	27
C/E (KG)	279	255	326	343	238	196	152	286	401
% > 2.3 KG			36	38	27	20	12	10	11

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS	11000	6100	8400		5000	5000	5000	5000	5000
CATCH (KG)	2359	3980	7477	180	2002	1075	1175	454	1484
EFFORT (PERSON-WKS)	24	34	39	7	18	12	13	5	17
C/E (KG)	98	117	192	26	111	90	90	91	87
% > 2.3 KG	11	12							

APPENDIX 1. ARCTIC CHARR CATCH STATISTICS, 1974-1991.
SUMMARY OF CATCH AND EFFORT DATA FOR THE MAIN FISHING REGION

AREA=DOG ISLAND

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)	2659	653	212	2039	386	1440	3048	1516	1105
EFFORT (PERSON-WKS)	38	40	11	49	25	61	86	37	38
C/E (KG)	70	16	19	42	15	24	35	41	29
% > 2.3 KG			11	9	8	15	11	14	7

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS									
CATCH (KG)	6858	6666	6882	3289	16881	11735	2794	7219	1240
EFFORT (PERSON-WKS)	62	66	62	32	86	88	27	44	14
C/E (KG)	111	101	111	103	196	133	103	164	89
% > 2.3 KG	8	10							

AREA=NAIN BAY

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)	12461		3119	8464				5450	85
EFFORT (PERSON-WKS)	37		10	28				29	1
C/E (KG)	337		312	302				188	85
% > 2.3 KG			16	15				4	

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS	5000								
CATCH (KG)	532	1886	2667	6437	3806	5179	20734	10265	4039
EFFORT (PERSON-WKS)	8	15	32	39	15	33	61	61	59
C/E (KG)	67	126	83	165	254	157	340	168	68
% > 2.3 KG	2	6							
RIVER FISHERY							345		

AREA=TIKKOATOKAK BAY

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS						39500	39500	28500	35000
CATCH (KG)	9960	27695	31568	39483	55061	37919	42131	28066	28283
EFFORT (PERSON-WKS)	28	76	81	94	147	108	130	80	75
C/E (KG)	356	364	390	420	374	351	324	351	377
% > 2.3 KG			19	20	18	14	10	5	7

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS	35000	26000	12500		16000	16000	16000	16000	16000
CATCH (KG)	16211	8618	6243	3841	3608	2240	2636	1491	2296
EFFORT (PERSON-WKS)	65	43	24	16	12	12	13	12	16
C/E (KG)	249	200	260	240	301	187	203	124	143
% > 2.3 KG	8	5							
RIVER FISHERY							473		

APPENDIX 1, ARCTIC CHARR CATCH STATISTICS, 1974-1991.
SUMMARY OF CATCH AND EFFORT DATA FOR THE MAIN FISHING REGION

AREA=WEBB BAY

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)	580	833	4550	2516	3472	3035	3008	8100	4607
EFFORT (PERSON-WKS)	1	5	15	21	16	9	8	29	27
C/E (KG)	580	167	303	120	217	337	376	279	171
% > 2.3 KG			21	19	20	39	39	27	11

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS					9000	9000	9000	9000	9000
CATCH (KG)	15055	10476	5143	5890	8424	6041	5904	4859	2343
EFFORT (PERSON-WKS)	56	43	35	34	27	33	17	10	10
C/E (KG)	269	244	147	173	312	183	347	486	234
% > 2.3 KG	5	7							
RIVER FISHERY							146		

AREA=BLACK ISLAND

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)	4264	2101	2725	3389	2966	10632	20051	14413	11602
EFFORT (PERSON-WKS)	60	62	48	65	81	92	130	94	79
C/E (KG)	71	34	57	52	37	116	154	153	147
% > 2.3 KG			8	10	14	7	6	7	8

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS									
CATCH (KG)	11028	7913	12750	17458	11151	12024	18222	20987	4490
EFFORT (PERSON-WKS)	87	62	68	72	50	61	60	65	37
C/E (KG)	127	128	188	242	223	197	304	323	121
% > 2.3 KG	4	5							

AREA=KIGLAPAITS

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)	5131	1504	6089	5435	12097	17606	16543	21911	8326
EFFORT (PERSON-WKS)	26	32	59	57	103	120	95	99	34
C/E (KG)	197	47	103	95	117	147	174	221	245
% > 2.3 KG			25	25	34	14	18	12	16

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS									
CATCH (KG)	20625	11431	6184	6983	1620	862	2065	1051	1110
EFFORT (PERSON-WKS)	103	55	41	55	14	9	22	10	15
C/E (KG)	200	208	151	127	116	96	118	105	74
% > 2.3 KG	12	9							

APPENDIX 1, ARCTIC CHARR CATCH STATISTICS, 1974-1991.
SUMMARY OF CATCH AND EFFORT DATA FOR THE MAIN FISHING REGION

AREA=TASIUYAK

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)	1467		281		2280	1837	1137		1060
EFFORT (PERSON-WKS)	15		2		9	11	8		6
C/E (KG)	98		141		253	167	142		177
% > 2.3 KG			21		71	34	14		11

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS									
CATCH (KG)	1259	3423	4724	6749	8997	2823	3186	3302	1077
EFFORT (PERSON-WKS)	7	23	36	26	61	22	23	17	5
C/E (KG)	180	149	131	260	147	128	139	194	215
% > 2.3 KG	13	5							

AREA=MUGFORD

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)			1970	1374	1148	170	513		
EFFORT (PERSON-WKS)			15	9	7	2	5		
C/E (KG)			131	153	164	85	103		
% > 2.3 KG			30	36	32	16	15		

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS									
CATCH (KG)	15								
EFFORT (PERSON-WKS)	1								
C/E (KG)	15								
% > 2.3 KG									

AREA=OKAK BAY

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS								27300	27300
CATCH (KG)	34250	2354	17812	27592	36125	26171	17434	11049	9031
EFFORT (PERSON-WKS)	105	15	52	107	104	123	65	46	26
C/E (KG)	326	157	343	258	347	213	268	240	347
% > 2.3 KG			29	26	18	11	8	10	7

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS	21000	27000	27000	27000	26000	22000	26000	26000	26000
CATCH (KG)	30732	13864	24746	20141	15695	12608	14973	12497	4112
EFFORT (PERSON-WKS)	147	30	119	91	71	51	84	45	13
C/E (KG)	209	462	208	221	221	247	178	278	316
% > 2.3 KG	7	2							

APPENDIX 1. ARCTIC CHARR CATCH STATISTICS, 1974-1991.
SUMMARY OF CATCH AND EFFORT DATA FOR THE MAIN FISHING REGION

AREA=CUTTHROAT

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)	12641	2703	7526	15488	41146	17803	32397	37263	25699
EFFORT (PERSON-WKS)	95	47	103	130	267	161	205	172	164
C/E (KG)	133	58	73	119	154	111	158	217	157
% > 2.3 KG			17	25	25	12	12	13	15

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS									
CATCH (KG)	19043	4570	8515	8756	3954	4842	1591	3628	320
EFFORT (PERSON-WKS)	164	65	106	89	70	89	84	55	18
C/E (KG)	116	70	80	98	56	54	19	66	18
% > 2.3 KG	10	7							

AREA=NAPARTOK

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)			28972	28039	8551	2486	752	291	16485
EFFORT (PERSON-WKS)			124	126	50	33	11	3	60
C/E (KG)			234	223	171	75	68	97	275
% > 2.3 KG			14	22	20	16	13	12	8

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS									
CATCH (KG)									242
EFFORT (PERSON-WKS)									4
C/E (KG)									60
% > 2.3 KG									

AREA=HEBRON FIORD

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									29072
CATCH (KG)				5957			2915	39901	37822
EFFORT (PERSON-WKS)				37				106	98
C/E (KG)				161				376	386
% > 2.3 KG				16			19	34	23

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS		20000							
CATCH (KG)		19531				543		643	20731
EFFORT (PERSON-WKS)		112				6		1	49
C/E (KG)		174				91		643	423
% > 2.3 KG									

APPENDIX 1. ARCTIC CHARR CATCH STATISTICS, 1974-1991.
SUMMARY OF CATCH AND EFFORT DATA FOR THE MAIN FISHING REGION

AREA=DOMES

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)								5187	2643
EFFORT (PERSON-WKS)								19	14
C/E (KG)								273	189
% > 2.3 KG								36	17

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS									
CATCH (KG)		976							
EFFORT (PERSON-WKS)		10							
C/E (KG)		98							
% > 2.3 KG									

AREA=SAGLEK FIORD

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)								24722	23791
EFFORT (PERSON-WKS)								77	118
C/E (KG)								321	202
% > 2.3 KG								18	7

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS									
CATCH (KG)		5389							
EFFORT (PERSON-WKS)		40							
C/E (KG)		135							
% > 2.3 KG									159
RIVER FISHERY									

AREA=RAMAH

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)									7758
EFFORT (PERSON-WKS)									26
C/E (KG)									298
% > 2.3 KG									20

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS									
CATCH (KG)		3110							
EFFORT (PERSON-WKS)		25							
C/E (KG)		124							
% > 2.3 KG									

APPENDIX 1, ARCTIC CHARR CATCH STATISTICS, 1974-1991.
SUMMARY OF CATCH AND EFFORT DATA FOR THE MAIN FISHING REGION

AREA=NACHVAK

	1974	1975	1976	1977	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)									
EFFORT (PERSON-WKS)									
C/E (KG)									
% > 2.3 KG									

	1983	1984	1985	1986	1987	1988	1989	1990	1991
QUOTAS									
CATCH (KG)			6142	1808					
EFFORT (PERSON-WKS)			18	4					
C/E (KG)			341	452					
% > 2.3 KG									
TRAP NET FISHERY				1777					

AREA=MAIN FISHERY

	1974	1975	1976	1977*	1978	1979	1980	1981	1982
QUOTAS									
CATCH (KG)	120414	44118	134898	186165	213915	175263	167991	231221	203012
EFFORT (PERSON-WKS)	531	309	616	863	966	918	880	914	856
C/E (KG)	227	143	219	216	221	191	191	253	237
% > 2.3 KG			24	25	25	17	12	16	13

	1983	1984	1985	1986**	1987	1988	1989	1990	1991
QUOTAS									
CATCH (KG)	149732	123045	107120	99963	97379	73937	84837	86292	54614
EFFORT (PERSON-WKS)	804	729	637	554	533	465	436	394	320
C/E (KG)	186	169	168	180	183	159	195	219	171
% > 2.3 KG	8	6					1133		159
RIVER FISHERY									

* Includes 186 kg unaccounted for by area
* Total also includes trap net catch from Nachvak Fiord

APPENDIX 2, NAIN REGION ATLANTIC SALMON CATCH STATISTICS, 1974-1991.

AREA=NAIN BAY

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)					90		2	2
EFFORT (PERSON-WKS)					9		1	1
C/E (KG)					10		2	2

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)	9	43		7	118	35	19
EFFORT (PERSON-WKS)	2	6		1	11	10	4
C/E (KG)	5	7		7	11	4	5

AREA=DOG ISLAND

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)	5999	5337	6877	9220	8022	4476	3931	618
EFFORT (PERSON-WKS)	76	66	101	110	78	62	70	32
C/E (KG)	79	81	68	84	103	72	56	19

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)	772	473	965	703	1106	1564	4
EFFORT (PERSON-WKS)	21	20	36	36	23	30	2
C/E (KG)	37	24	27	20	48	52	2

AREA=BLACK ISLAND

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)	8659	9710	5557	11844	8374	6944	2940	2394
EFFORT (PERSON-WKS)	98	103	116	139	99	96	78	55
C/E (KG)	88	94	48	85	85	72	38	44

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)	2842	4790	1928	3980	4686	2217	757
EFFORT (PERSON-WKS)	67	86	54	57	64	66	32
C/E (KG)	42	56	36	70	73	34	24

AREA=OKAK BAY

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)	842	1011	1055	335	1364	92	653	153
EFFORT (PERSON-WKS)	51	51	66	36	34	11	75	19
C/E (KG)	17	20	16	9	40	8	9	8

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)	465	428	171	283	775	280	38
EFFORT (PERSON-WKS)	52	44	29	30	64	29	5
C/E (KG)	9	10	6	9	12	10	8

APPENDIX 2, NAIN REGION ATLANTIC SALMON CATCH STATISTICS, 1974-1991.

AREA=NAPARTOK BAY

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)	2174	3423	4402	929	193	432		
EFFORT (PERSON-WKS)	72	32	33	8	3	33		
C/E (KG)	30	107	133	116	64	13		
	1985	1986	1987	1988	1989	1990	1991	
CATCH (KG)								
EFFORT (PERSON-WKS)								
C/E (KG)								

AREA=HEBRON FIORD

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)	430				334	350		2242
EFFORT (PERSON-WKS)	31				33	24		70
C/E (KG)	14				10	15		32
	1985	1986	1987	1988	1989	1990	1991	
CATCH (KG)							6	
EFFORT (PERSON-WKS)							1	
C/E (KG)							6	

AREA=SAGLEK FIORD

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)					498	78		67
EFFORT (PERSON-WKS)					26	11		9
C/E (KG)					19	7		7
	1985	1986	1987	1988	1989	1990	1991	
CATCH (KG)								
EFFORT (PERSON-WKS)								
C/E (KG)								

AREA=ANTONS

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)	126	51	293	85	59	88	638	139
EFFORT (PERSON-WKS)	10	7	34	10	12	10	40	18
C/E (KG)	13	7	9	9	5	9	16	8
	1985	1986	1987	1988	1989	1990	1991	
CATCH (KG)	333	104	182	148	146	101	3	
EFFORT (PERSON-WKS)	19	16	23	19	20	20	1	
C/E (KG)	18	7	8	8	7	5	3	

APPENDIX 2, MAIN REGION ATLANTIC SALMON CATCH STATISTICS, 1974-1991.

AREA=NACHVAK FIORD

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)								
EFFORT (PERSON-WKS)								
C/E (KG)								

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)							
EFFORT (PERSON-WKS)							
C/E (KG)							

AREA=VOISEY BAY

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)	83	410	33	35	45	51	62	55
EFFORT (PERSON-WKS)	14	20	5	7	9	9	9	5
C/E (KG)	6	21	7	5	5	6	7	11

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)		5	10	10		10	19
EFFORT (PERSON-WKS)		1	2	2		2	4
C/E (KG)		5	5	5		5	5

AREA=ANAKTALIK BAY

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)	27	12	92	11			14	9
EFFORT (PERSON-WKS)	4	3	12	3			2	2
C/E (KG)	7	4	8	4			7	5

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)	5						
EFFORT (PERSON-WKS)	2						
C/E (KG)	3						

AREA=TIKKOATOKAK BAY

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)	22	25	13	57	6	53	105	12
EFFORT (PERSON-WKS)	5	3	3	4	1	8	11	3
C/E (KG)	4	8	4	14	6	7	10	4

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)	18	5	7	20	10	17	
EFFORT (PERSON-WKS)	4	1	2	4	3	4	
C/E (KG)	5	5	4	5	3	4	

APPENDIX 2, MAIN REGION ATLANTIC SALMON CATCH STATISTICS, 1974-1991.

AREA=WEBB BAY

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)	236	131	118	2	173	264	487	142
EFFORT (PERSON-WKS)	17	9	6	1	19	20	42	17
C/E (KG)	14	15	20	2	9	13	12	8

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)	173	59	79	103	114	202	98
EFFORT (PERSON-WKS)	15	12	9	10	12	9	5
C/E (KG)	12	5	9	10	10	22	20

AREA=KIGLAPAITS

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)	5357	7544	5183	7690	5177	3743	4231	2502
EFFORT (PERSON-WKS)	47	86	117	94	94	35	90	39
C/E (KG)	114	88	44	82	55	107	47	64

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)	1255	1459	336	346	2430	179	204
EFFORT (PERSON-WKS)	38	48	14	6	24	9	12
C/E (KG)	33	30	24	58	101	20	17

AREA=TASIUYAK

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)		3	18	248			105	58
EFFORT (PERSON-WKS)		1	2	5			2	7
C/E (KG)		3	9	50			53	8

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)	35	324	138	167	495	75	18
EFFORT (PERSON-WKS)	6	15	19	9	12	10	2
C/E (KG)	6	22	7	19	41	8	9

AREA=CUTTHROAT

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)	17626	21166	12072	29716	21757	15291	6936	7013
EFFORT (PERSON-WKS)	135	174	153	199	165	157	122	50
C/E (KG)	131	122	79	149	132	97	57	140

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)	8745	12400	10599	14323	20080	8212	1522
EFFORT (PERSON-WKS)	82	101	87	108	126	57	21
C/E (KG)	107	123	122	133	159	144	72

APPENDIX 2, NAIN REGION ATLANTIC SALMON CATCH STATISTICS, 1974-1991.

AREA=MUGFORD

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)		121	8	159				
EFFORT (PERSON-WKS)		7	2	3				
C/E (KG)		17	4	53				

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)							
EFFORT (PERSON-WKS)							
C/E (KG)							

AREA=DOMES

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)					2033	1107		164
EFFORT (PERSON-WKS)					16	14		9
C/E (KG)					127	79		18

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)							
EFFORT (PERSON-WKS)							
C/E (KG)							

AREA=RAMAH BAY

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)						5		27
EFFORT (PERSON-WKS)						1		3
C/E (KG)						5		9

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)							
EFFORT (PERSON-WKS)							
C/E (KG)							

AREA=NAIN FISHERY

	1977	1978	1979	1980	1981	1982	1983	1984
CATCH (KG)	41581	48945	35722	60332	48124	32974	20105	15596
EFFORT (PERSON-WKS)	560	562	650	619	598	491	542	339
C/E (KG)	74	87	55	97	80	67	37	46

	1985	1986	1987	1988	1989	1990	1991
CATCH (KG)	14653	20090	14414	20090	29960	12892	2688
EFFORT (PERSON-WKS)	308	350	275	282	359	246	89
C/E (KG)	48	57	52	71	83	52	30